CLAIMS

What is claimed is:

1.   A method, comprising:

in response to a data stream to be transmitted onto a serial communication link, encoding one or more bits of the data stream according to a bit order determined based on a frequency of signal transitions of the data stream;

forming a sequence in an encoded data stream having a lower number of bit transitions with respect to the frequency of signal transitions of the data stream prior to the encoding via reordering of the bits in the data stream; and

transmitting the encoded data sequence onto the serial communication link.

2.   The method of claim 1, further comprising determining one or more activity factors of the data stream, wherein encoding one or more bits of the data stream is performed to reduce one or more values of the one or more activity factors.

3.   The method of claim 1, wherein encoding one or more bits of the data stream comprises rearranging one or more bits of the data stream to increase a number of consecutive bits that have an identical logical value.

4.   The method of claim 3, wherein the data stream comprises a first segment and a second segment, and wherein encoding one or more bits of the data stream comprises:

encoding one or more bits of at least one of the first and second segments to the number of consecutive bits that have the identical logical value within the first and second segments; and

serializing the encoded at least one of the first and second segments to generate a sequence of bits representing the first and second segments

15

as a part of the encoded data sequence suitable to be transmitted onto the serial link.

5. The method of claim 4, further comprising:
    encoding bits of the first segment in a first bit order;
    encoding bits of the second segment in a second bit order different than the first bit order; and
    serializing the encoded first and second segments to form the sequence of bits representing the first and second segments.

6. The method of claim 5, wherein the first segment is encoded from LSB (least significant bit) to MSB (most significant bit), and wherein the second segment is encoded from MSB to LSB.

7. The method of claim 5, wherein the data stream is received from a parallel bus, and wherein encoding one or more bits of the data stream comprises converting the data stream from a first format suitable for the parallel bus into a second format suitable for the serial communication link.

8. The method of claim 7, wherein converting the data stream from the first format to the second format is performed by a parallel-to-serial converter within a chipset of a data processing system.

9. The method of claim 8, wherein the parallel-to-serial converter comprises direction control logic to control whether a segment of the data stream is encoded according to one of the first and second bit orders.

10. The method of claim 1, wherein the data stream comprises audio data and wherein the serial communication link comprises an audio link.

11. An apparatus, comprising:

an input/output (I/O) circuit having an associated encoder to encode one or more bits of the data stream according to a bit order determined based on a frequency of signal transitions of a data stream, in response to the data stream to be transmitted onto a serial communication link, wherein the encoder to form a sequence of encoded data stream having a lower number of bit transitions with respect to the frequency of signal transitions of the data stream prior to the encoding via reordering of the bits in the data stream; and

a serial communication interface coupled to the encoder to transmit the encoded data sequence onto the serial communication link.

12. The apparatus of claim 11, wherein the encoder is configured to determine one or more activity factors of the data stream, and rearrange one or more bits of the data stream to increase a number of consecutive bits that have an identical logical value based on the determined one or more activity factors.

13. The apparatus of claim 12, wherein the data stream comprises a first segment and a second segment, and wherein the encoder is further configured to

encode bits of the first segment in a first bit order,

encode bits of the second segment in a second bit order different than the first bit order, and

serialize the encoded first and second segments to form the sequence of bits representing the first and second segments.

14. The apparatus of claim 13, wherein the encoder comprises direction control logic to control whether at least one of the first and second segments should be encoded according to one of the first and second bit orders.

15.   A machine-readable medium for storing instructions, when executed by a machine, cause the machine to perform a method, the method comprising:

in response to a data stream to be transmitted onto a serial communication link, encoding one or more bits of the data stream according to a bit order determined based on a frequency of signal transitions of the data stream;

forming a sequence in an encoded data stream having a lower number of bit transitions with respect to the frequency of signal transitions of the data stream prior to the encoding via reordering of the bits in the data stream; and

transmitting the encoded data sequence onto the serial communication link.

16.   The machine-readable medium of claim 15, wherein encoding one or more bits of the data stream comprises rearranging one or more bits of the data stream to increase a number of consecutive bits that have an identical logical value, wherein the data stream comprises a first segment and a second segment, and wherein encoding one or more bits of the data stream comprises:

encoding one or more bits of at least one of the first and second segments to the number of consecutive bits have an identical logical value within the first and second segments; and

serializing the encoded at least one of the first and second segments to generate a sequence of bits representing the first and second segments suitable to be transmitted onto the serial link.

17.   The machine-readable medium of claim 15, wherein the method further comprises:

encoding bits of the first segment in a first bit order;

encoding bits of the second segment in a second bit order different than the first bit order; and

serializing the encoded first and second segments to form the sequence of bits representing the first and second segments.

18

18. A data processing system, comprising:

a processor; and

a chipset coupled to the processor, the chipset including

an input/output (I/O) circuit having an associated encoder to encode one or more bits of the data stream according to a bit order determined based on a frequency of signal transitions of a data stream, in response to the data stream to be transmitted onto a serial communication link, wherein the encoder to form a sequence of encoded data stream having a lower number of bit transitions with respect to the frequency of signal transitions of the data stream prior to the encoding via reordering of the bits in the data stream, and

a serial communication interface coupled to the encoder to transmit the encoded data sequence onto the serial communication link.

19. The system of claim 18, wherein the encoder is configured to

determine one or more activity factors of the data stream, and

rearrange one or more bits of the data stream to increase a number of consecutive bits have an identical logical value based on the determined one or more activity factors.

20. The system of claim 19, wherein the data stream comprises a first segment and a second segment, and wherein the encoder is further configured to

encode bits of the first segment in a first bit order,

encode bits of the second segment in a second bit order different than the first bit order, and

serialize the encoded first and second segments to form the sequence of bits representing the first and second segments.